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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,293	11/18/2005	Rolf Muller	05-621	8643
34704	7590	09/11/2006	EXAMINER	
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			MESH, GENNADIY	
			ART UNIT	PAPER NUMBER
			1711	

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,293	<b>Applicant(s)</b> MULLER ET AL.	
	<b>Examiner</b> Gennadiy Mesh	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-49 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 13-15, 18-49 is/are rejected.
- 7) ☒ Claim(s) 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.1. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polyolefin polymers claimed in Claim 42 and low molecular weight products, claimed in Claim 43, does not reasonably provide enablement for other types of polymers and/or low molecular weight products. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Specification does not disclose how to obtain or select both low molecular weight products and polymers, other than polyolefin polymers, thus it will require undue experimentation for any ordinary skill in the art to use this invention. For examination purposes scope of Claim 13 will be narrow to polyolefin polymers claimed in Claim 43 and low molecular products, claimed in Claim 42.

1.2. Claims 47 and 48 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for general polyolefin polymers claimed in Claim 42 and low molecular weight products, claimed in Claim 43, does not reasonably provide enablement for polyolefin polymers characterized by density higher than 0.97 g/cc. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with

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these claims. Specification does not disclose how to obtain polyolefin polymers, with density higher than 0.97 g/cc, thus it will require undue experimentation for any ordinary skill in the art to use this invention, because this type of polyolefin polymers are not commercially available (see Basell publication: Polyethylene Products and Properties, Tab.1, incorporated herein as a reference).

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13,14,18 – 29,34-37,42- 46, 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Eastman publication (EP) : “Epolene E-20 Wax – Extrusion lubricant for Fractional Melt High-Density Polyethylene (HDPE)”, pages 1-4, September 1999.

Regarding Applicant's Claim 13,42 and 43 EP discloses composition of HDPE with low molecular weight polyethylene wax, wherein wax (see EP : “Epolene E-20”, incorporated herein as a reference) has degree of polymerization low than 200, based on  $M_n$  value of 1600 and density 0.96 g/cc, which indicates high degree of crystallinity.

Regarding Applicant's Claim 14 EP discloses that Modulus of this composition is higher compared with polyethylene (see Fig.9) for more than 10% at wax content

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equal 2.5wt.% and Tensile Strength @ Yield ( yield stress, see Fig.5) is approximately 30% compare with polyethylene at wax content equal 5 wt.%.

Regarding Applicant's Claims 18-21 EP does report increase in output rate by 31% ( see page 1, first paragraph) which is proportional to the increase in MFI of the composition, with no detrimental effect to physical properties. Because composition is substantially same as claimed by Applicant, than melt flow will be inherent properties of the composition and will depend on MFI for each component and their ratio. Burden shifts to the Applicant to proof the contrary.

Regarding Applicant's Claims 22-25, EP discloses that density of the composition ( see Fig.3) is higher than density of polyethylene at wax level of 5wt% - about 0.9555 g/cc for composition compare with 0.9370 for polyethylene - which is inherently indicate that degree of crystallinity increased by approximately 20% ( see Basell publication, Fig.4).

Regarding Applicant's Claims 26 –29, EP discloses composition with wax content in a range from 2.5wt.% to 7.5wt.%.

Regarding Applicant's Claims 34 –37 : polyethylene disclosed by EP inherently will have polydispersity value from 2 to 20 ( see Encyclopedia of Polymer Science and technology, page 389 incorporated herein as a reference).

Regarding Applicant's Claims 44 – 46 : crystalline polyethylene inherently has melting point above 80°C with density more than 0.9g/cc, melting point above 100°C with density more than 0.925g/cc and melting point above 110°C with density

more than 0.950 g/cc ( see Basell publication, Fig.31 incorporated herein as a reference).

4. Claims 13, 18-21 and 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Jialanella ( US 6,300,398).

Regarding Applicant's Claim 13 Jialanella discloses composition of a linear or substantially linear low density polyethylene and a wax, including low molecular weight polyethylene wax( see abstract, lines 10 –35 ,column 3 and line 20 –60,column 13).

Regarding Applicant's Claims 18-21: composition disclosed by Jialanella is being substantially same as Applicant's, will inherently have same Melt flow properties.

Burden shifts to the Applicant to prove the contrary.

Regarding Claims 34 – 37 Jialanella discloses that polymers have polydispersity around 2 ( see Table V).

5. Claims 18 –21 are rejected under 35 U.S.C. 102(b) as being anticipated by Genetti ( US 2002/01561172).

Regarding Claim 18 and 19 Genetti discloses method of improving flow ( see Fig.1) by blending polyolefins, including high density polyethylene ( see paragraph[0007],page 1) with wax (see paragraph [0009],page 1).

Regarding Claims 20 and 21: as substantially same composition disclosed by Genetti will have same Melt flow properties. Burden shifts to Applicant to prove the contrary.

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 38 – 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jialanella ( US 6,300,398) as applied to claims 13 and 34-37 above, and in view of Kokko ( Metallocene-Catalyzed Ethene Polymerization: Long-Chain Branched Polyethylene, September 2002). Jialanella discloses composition, wherein polymer has long chain branching, but silent about length of the branching chains( see line 40,column 3). However, Kokko teach that short chain branches, less than 40 carbon atoms will interfere with formation of crystal structure of polyethylene ( see page 1,second paragraph) and when branch length increases they (chains) become able to form lamellar crystals. Therefore, it would have been obvious to one ordinary of skill in the art at the time of the invention to use composition of Jialanella wherein polymer has long chain branching with length higher than 40 carbon atoms per teaching of Kokko, in order to increase overall crystallinity and probability for heterocrystallization with other polymers in composition.

8. Claims 30 –33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jialanella as applied to claims 13 and 34-37 above, and further in view of Polywax Polyethylene ( Baker – Hughes web site publication). Jialanella discloses composition ,wherein polymer has degree of long chain branches in a range from 0.01 – 3 per 1000, ( see line 40,column 3) which encompasses degree of branching claimed by Applicant for first polymer component P(i), but silent about branching degree of low molecular weight polyethylene wax. Thus implying that low molecular weight polyethylene wax

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with this property( degree of branching) is known in the art (and commercially available), is suitable for the invention disclosed by Jialanella with reasonable expectation of adequate results. Low molecular polyethylene wax with no branching, 100% linear, that will satisfy limitation claimed by Applicant in Claims 30 –33, disclosed by Baker – Hughes web site publication as being available for thirty years, incorporated herein as a reference. Thus use of 100% liner low molecular weight polyethylene wax in invention claimed by Jialanella would have been obvious with reasonable expectation of success absent showing of unexpected results that can be clearly attribute to claimed degree of branching by Applicant.

#### ***Allowable Subject Matter***

9. Claims 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and enabled by specification ( see paragraph 1.1 above).

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gennadiy Mesh whose telephone number is (571) 272 2901. The examiner can normally be reached on 8a.m - 4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 1711

GM  
08/20/06

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